METAL WORK PNEUMATIC

DISTRIBUTORS

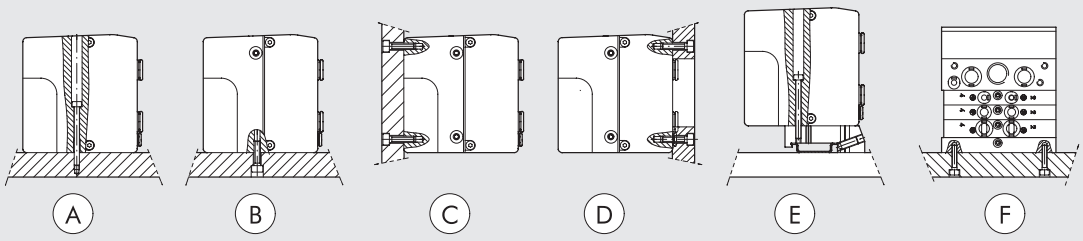
FIELDBUS
CM CLEVER MULTIMACH

INTRODUCTION

GENERAL TECHNICAL DATA

Valve port connections		Ø 4,6,8 mm automatic fitting for ports 2 and 4 / power supply port for Ø10 automatic fitting / 3/8 thread for exhaust port / M5 thread for exhaust pilot port		
Connection on the end-plate 1-11 for the supply of pilots		Automatic fitting Ø 4 mm		
Maximum number of pilots		See input end-plate technical data		
Maximum number of valves		See input end-plate technical data		
Operating temperature range	°C	-10 to +60		
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous		
Flow rate at 6.3 bar ΔP 1bar	Nl/min	11.5 mm Ø 4	11.5 mm Ø 6	14 mm Ø 8
	version 5/2 and 3/2	200	500	650
	version 5/3	200	300	300
Pressure range		X (pilot supply)		1-11 (valve supply)
	end-plate 1-11	3 to 7 bar		vacuum at10 bar
	end-plate 1	3 to 7 bar		
Voltage range		24VDC ±10%		
		(slave protected against overload and reverse polarity)		
Power for each pilot	W	0.9		
Solenoid Pilot Insulation class		F155		
Degree of protection		IP65 (with conveyed exhust, and that - in case of no use)		
Diagnostics and protections		Local via PC/PLC fault led. For defects signalled look at the manual.		
		Outlets protected against overload and short-circuit		
Solenoid rating		100% ED		
Maximum latency time of the serial transmission	ms	<10		
TRA/TRR 2x3/2 monostable at 6 bar	ms	8 / 45		
TRA/TRR 5/2 monostable at 6 bar	ms	8 / 33		
TRA/TRR 5/2 bistable at 6 bar	ms	20 / 20		
TRA/TRR 5/3 cc monostable at 6 bar	ms	20 / 20		
Note on use		Insert the pipes in the fittings, before passing air through the valves, otherwise the gasket may be pulled out of its seat by the flow of air.		
Compatibility with oils		Please refer to page 6-7 of the technical documentation of the general catalogue.		

FIXING THE BASE



Ⓐ Fixing from above using the 1 or 1-1 input end-plate and the blind end-plate.
Ⓑ Ⓒ Fixing from above using the 1 or 1-1 input end-plate and the blind end-plate, using the M5 threads on the bottom and the rear of the end-plates.
Ⓓ Fixing from above using the 1 or 1-1 input end-plate and the blind end-plate, using the M5 threads on the front of the end-plates. An opening for the pipes is made in the plate.
Ⓔ Fixing on the DIN bar with end-plate 1 or 1-11 and blind end-plate, using the push-in bracket code 0227301600.
Ⓕ Lateral fixing using the blind end-plate, and its the M4 threads on the side lateral.
Note: The sole fixing admitted is the one showed.

KEY TO CODES – CLEVER MULTIMACH CM WITH FIELD BUS

C M	2	PN O	M	I6 - W8 - W6 - O4 - L8 - 5	16
VALVE	**INPUT END-PLATE**	**FUNCTION**	**MANUAL TYPE**	**TYPE OF VALVE**	**FURTHER DETAILS**
Clever Multimach	**2** End-plate 1-11 **3** End-plate 1	**ADD** Additional (slave) valves only **PN O** Profinet IO, outputs only **EC O** EtherCAT, outputs only **CAN O** CANopen, outputs only	**M** Monostable manual control **B** Bistable manual control	**I** n° 2 3/2 NC **W** n° 2 3/2 NO **L** 3/2 NO + 3/2 NC **V** 5/2 monostable **K** 5/2 bistable **O** 5/3 monostable **5** Blind end-plate **6** Passing-intermede **7** Blind intermediate **20** Exhaust section **4** Cartridge 4 **6** Cartridge 6 **8** Cartridge 8	**16** n° 2 brackets for DIN bar

CM + Profinet IO

The CM + Profinet IO system has been designed with a pneumatic input end-plate that can contain all the electronic equipment, indicators and connectors. This system is very compact and sturdy and is housed in a thick aluminium body that protects sensitive components from impact and falls.
At the moment it's available the version suitable to handle up to 32 pilots (32 Out).
Grounding is recommended to protect the electronic circuit against electric or electrostatic charges.

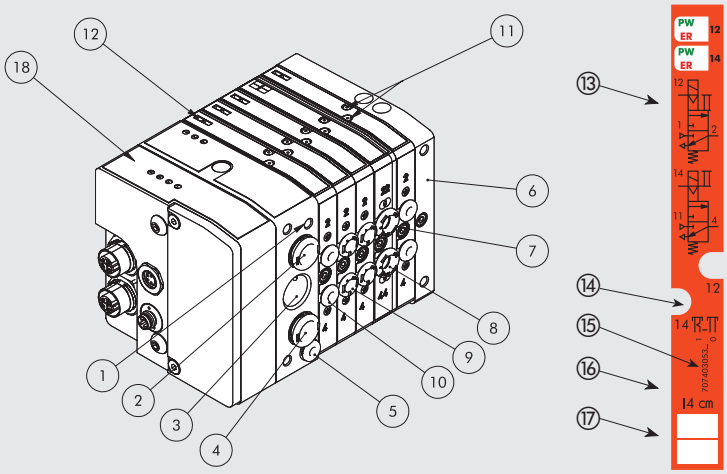
TECHNICAL DATA

Field buses	Profinet IO - 100 Mbit/s - Full-duplex
	Supports Fast Start Up, RT communication, Shared Device, Identification & Maintenance 1-4
Factory settings	Module name: Cmseries
	Address IP 0.0.0.0
Addressing	Software DCP
Voltage range	24VDC ± 10%
Maximum number of pilots (Out)	32
Maximum number of valves	32 (same as the max. no. of pilotos)
Icc bus supply current	Nominal Icc 120 mA - Instantaneous Icc (< 2 ms) 450 mA
Icc valve supply current	Instantaneous Icc (< 2 ms) 450 mA
Maximum absorption of a valve island with 32 monostable valves	Nominal Icc with 450 mA OFF valves – nominal Icc with 1350 mA ON valves
Protections	Module protected against overload and polarity reversal. Outputs protected against overloads and short-circuits
Connections	Field bus: 2 M12 Female, D-coded, internal switch
	supply: M8 4 pin
BUS diagnostics	Using local LEDs and software messages
	Outputs: using local LEDs and status bytes
	N.B. Refer to the user manual for a detailed description
Data bit value	0 = not enabled
	1 = enabled
Output status in the absence of communication	Disabled

See page 2 for general technical data

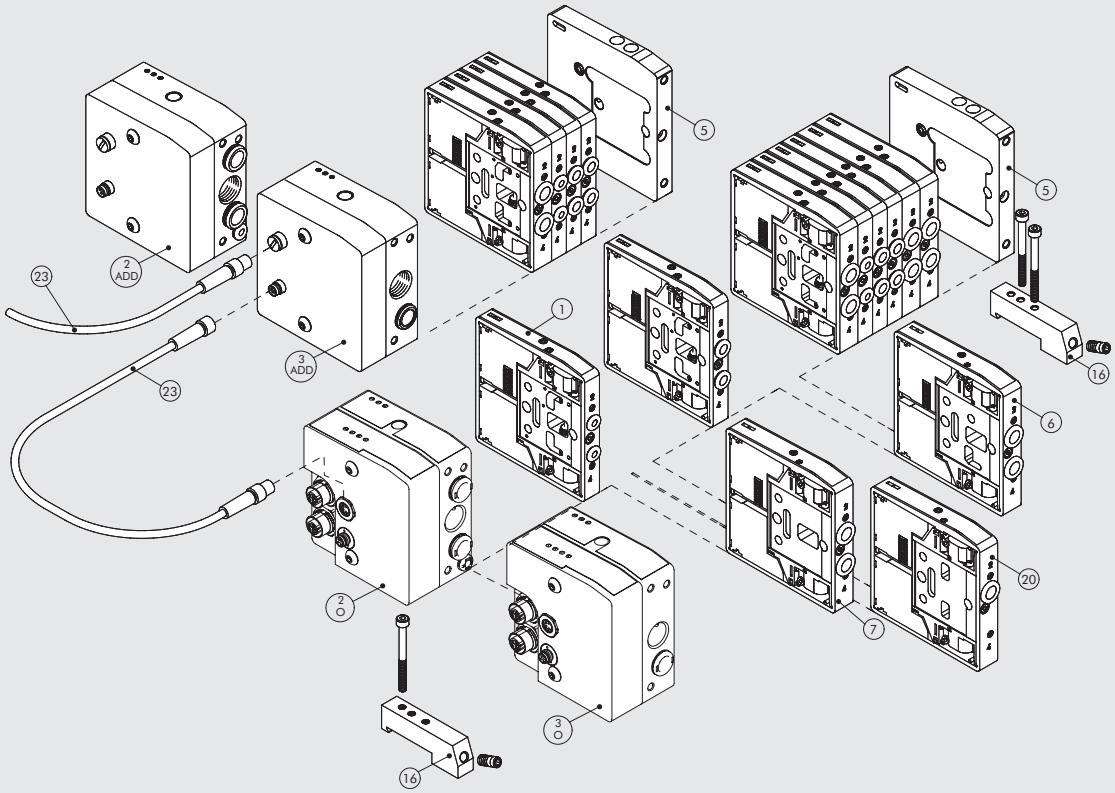
COMPONENTS

① Exhaust - Solenoid pilot 82/84
② Valve supply - port 1
③ Threaded connection of exhausts 3/5
④ Valve supply - port 11
⑤ Electrical control supply X
⑥ Blind end-plate
⑦ Screw for valve wall-mounting
⑧ Utility port for pipe Ø 8 mm
⑨ Utility port for pipe Ø 6 mm
⑩ Utility port for pipe Ø 4 mm
⑪ Manual control
⑫ LED (LED on, solenoid valve energised)
⑬ Pneumatic symbol
⑭ Identification of the monostable or bistable manual control
⑮ Valve ordering code
⑯ Valve identification code
⑰ Blank space for valve number
⑱ CM Profinet IO end-plate

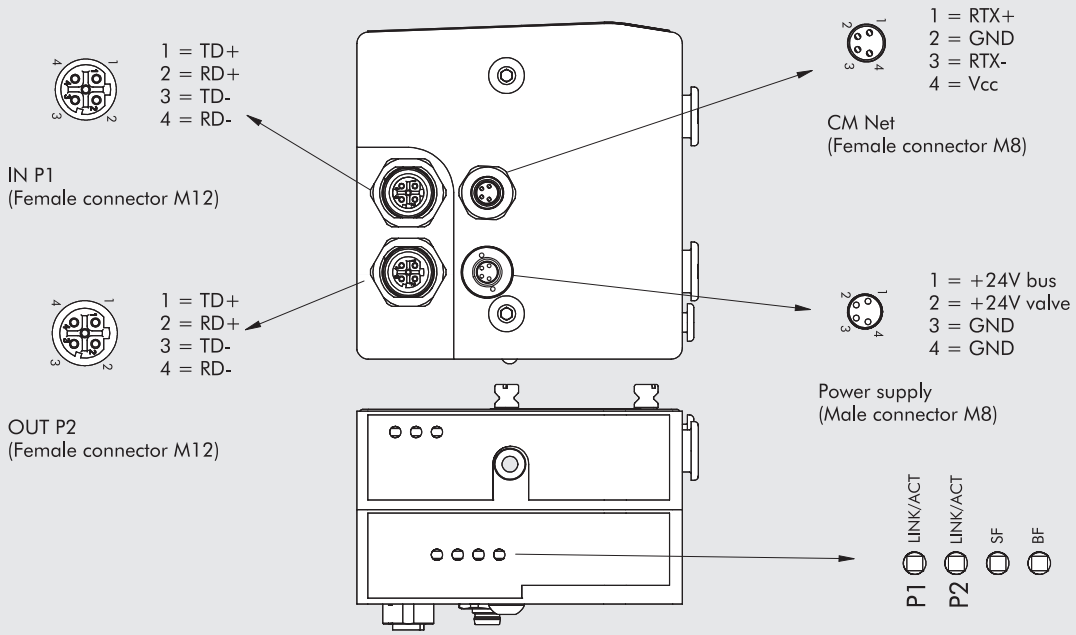


VALVE ISLAND CONFIGURATION

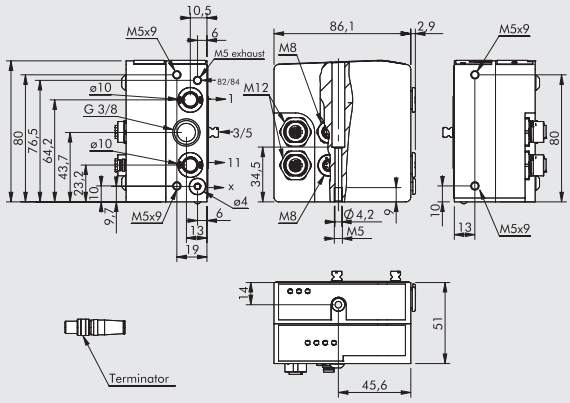
The numbers permit rapid identification of the function and assembly position of the single elements represented as follows.



WIRING DIAGRAM



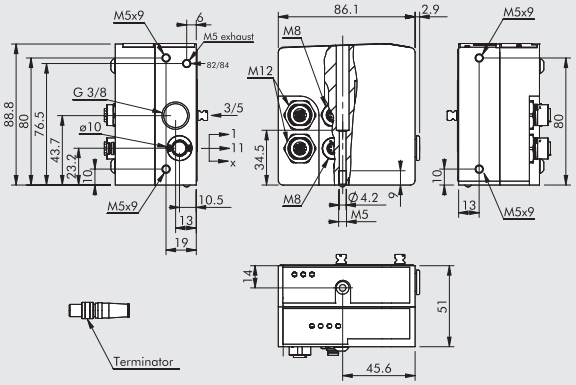
2 - O END-PLATE 1-11 Profinet IO OUTPUT



Code	Description	Weight [g]
0227302230	End-plate CM 1-11 Profinet IO OUTPUT	683

This end-plate allows for supplies to be differentiated:
port 2, port 4 and pilot supply
Note: terminator included

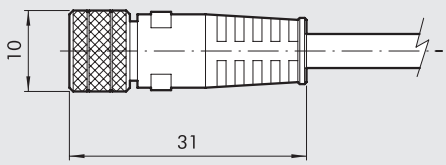
3 - O END-PLATE 1 Profinet IO OUTPUT



Code	Description	Weight [g]
0227302231	End-plate CM 1 Profinet IO OUTPUT	686

Note: terminator included

M8 CONNECTOR FOR POWER SUPPLY



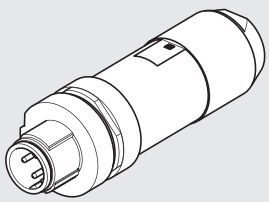
Pin	Cable colour
1	brown
2	white
3	blue
4	black

Code	Description
0240009037	M8 connector for power supply wire 5 m

M12 PLUG

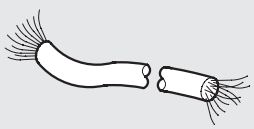
Code	Description
0240009040	Plug M12

M12 BUS CONNECTOR, D-CODED



Code	Description
0240005051	M12 BUS connector, D-coded

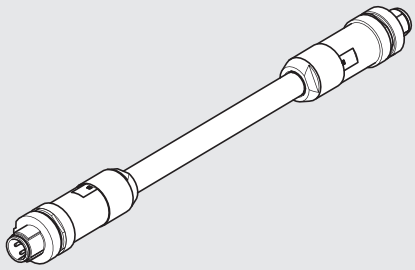
BUS CABLE



Code	Description
0240005220	BUS cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP....)

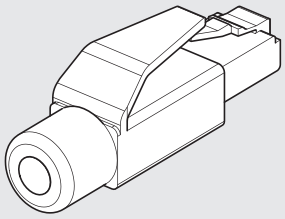
STRAIGHT BUS CONNECTOR



Code	Description
0240005103	Straight connector for M12 BUS, D-coded, with 3m cable
0240005105	Straight connector for M12 BUS, D-coded, with 5m cable
0240005110	Straight connector for M12 BUS, D-coded, with 10m cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP….)

RJ45 CONNECTOR



Code	Description
0240005050	RJ45 connector with 4 contacts according to IEC 60 603-7

NOTES

CM + EtherCAT

The CM + EtherCAT system has been designed with a pneumatic input end-plate that can contain all the electronic equipment, indicators and connectors.
This system is very compact and sturdy and is housed in a thick aluminium body that protects sensitive components from impact and falls.
At the moment it's available the version suitable to handle up to 32 pilots (32 Out).
Grounding is recommended to protect the electronic circuit against electric or electrostatic charges.

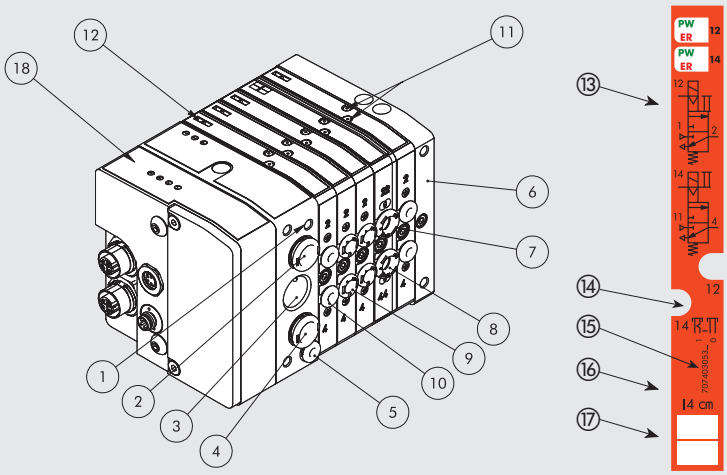
TECHNICAL DATA

Field buses	EtherCAT - 100 Mbit/s - Full-duplex - Supports auto-negotiation
Factory settings	Module name: Cmseries
	Address IP 0.0.0.0
Addressing	Software DCP
Voltage range	24VDC ± 10%
Maximum number of pilots (Out)	32
Maximum number of valves	32 (same as the max. no. of pilotos)
Icc bus supply current	Nominal Icc 120 mA - Instantaneous Icc (< 2 ms) 450 mA
Icc valve supply current	Instantaneous Icc (< 2 ms) 450 mA
Maximum absorption of a valve island with 32 monostable valves	Nominal Icc with 450 mA OFF valves – nominal Icc with 1350 mA ON valves
Protections	Module protected against overload and polarity reversal. Outputs protected against overloads and short-circuits
Connections	Field bus: 2 M12 Female, D-coded, internal switch
	supply: M8 4 pin
BUS diagnostics	Using local LEDs and software messages
	Outputs: using local LEDs and status bytes
	N.B. Refer to the user manual for a detailed description
Data bit value	0 = not enabled
	1 = enabled
Output status in the absence of communication	Disabled

See page 2 for general technical data

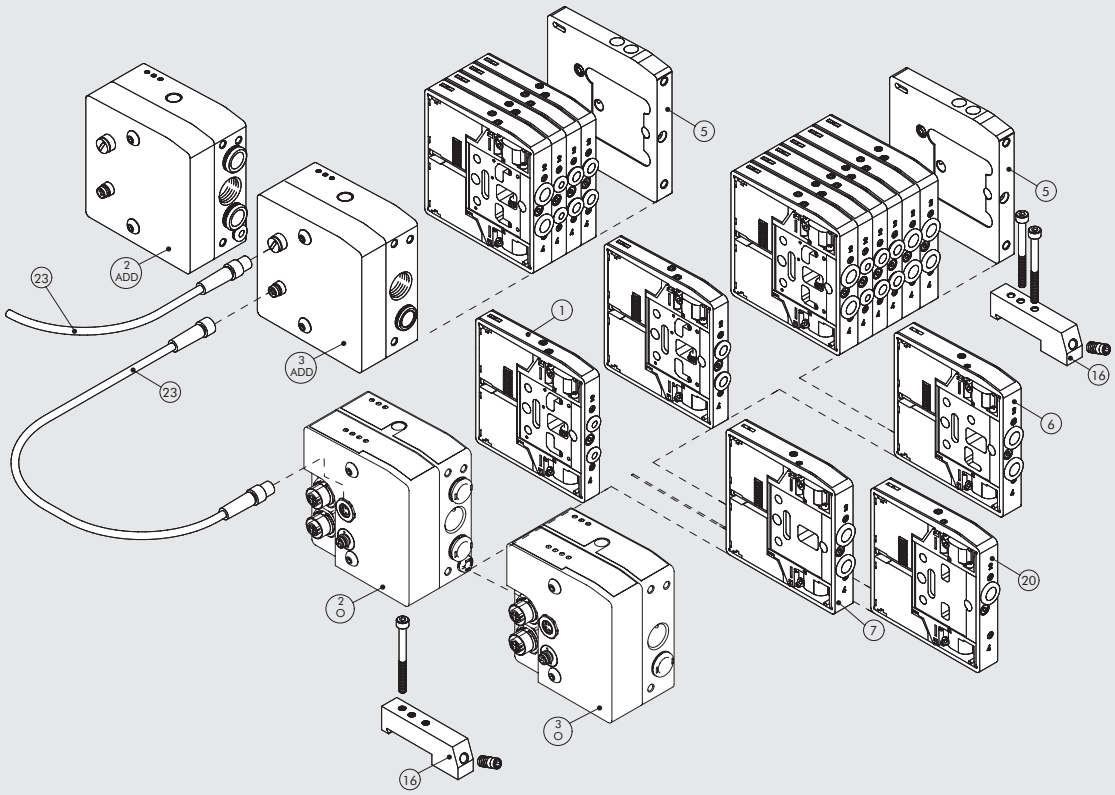
COMPONENTS

① Exhaust - Solenoid pilot 82/84
② Valve supply - port 1
③ Threaded connection of exhausts 3/5
④ Valve supply - port 11
⑤ Electrical control supply X
⑥ Blind end-plate
⑦ Screw for valve wall-mounting
⑧ Utility port for pipe Ø 8 mm
⑨ Utility port for pipe Ø 6 mm
⑩ Utility port for pipe Ø 4 mm
⑪ Manual control
⑫ LED (LED on, solenoid valve energised)
⑬ Pneumatic symbol
⑭ Identification of the monostable or bistable manual control
⑮ Valve ordering code
⑯ Valve identification code
⑰ Blank space for valve number
⑱ CM EtherCAT end-plate

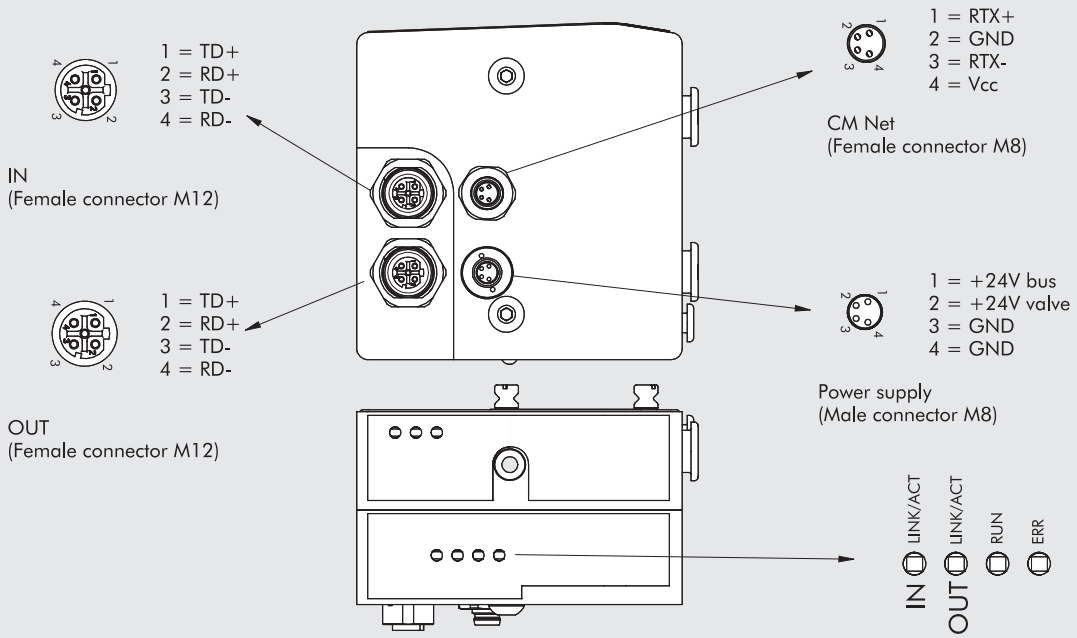


VALVE ISLAND CONFIGURATION

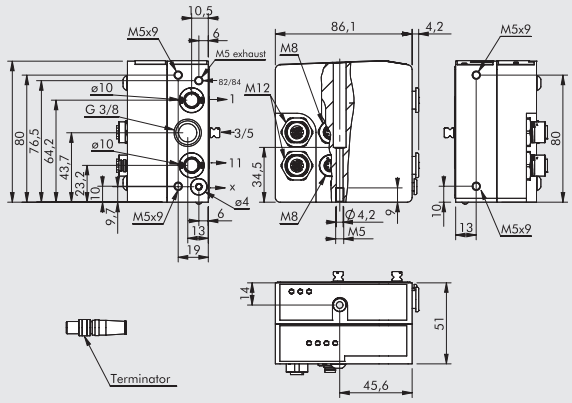
The numbers permit rapid identification of the function and assembly position of the single elements represented as follows.



WIRING DIAGRAM



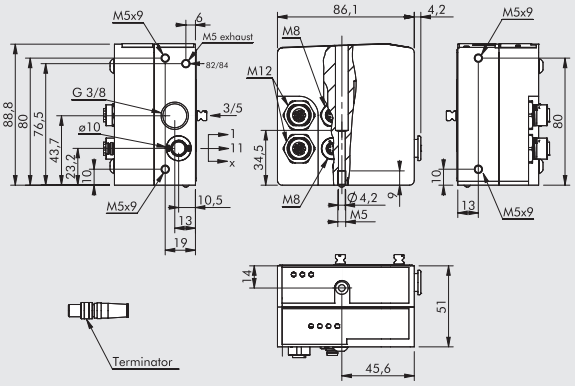
2 - O END-PLATE 1-11 EtherCAT OUTPUT



Code	Description	Weight [g]
0227302234	End-plate CM 1-11 EtherCAT OUTPUT	683

This end-plate allows for supplies to be differentiated:
port 2, port 4 and pilot supply
Note: terminator included

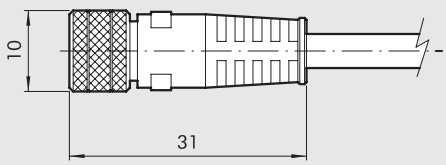
3 - O END-PLATE 1 EtherCAT OUTPUT



Code	Description	Weight [g]
0227302235	End-plate CM 1 EtherCAT OUTPUT	686

Note: terminator included

M8 CONNECTOR FOR POWER SUPPLY



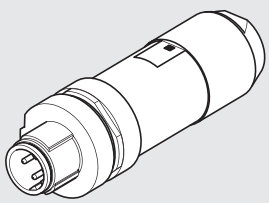
Pin	Cable colour
1	brown
2	white
3	blue
4	black

Code	Description
0240009037	M8 connector for power supply wire 5 m

M12 PLUG

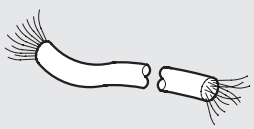
Code	Description
0240009040	Plug M12

M12 BUS CONNECTOR, D-CODED



Code	Description
0240005051	M12 BUS connector, D-coded

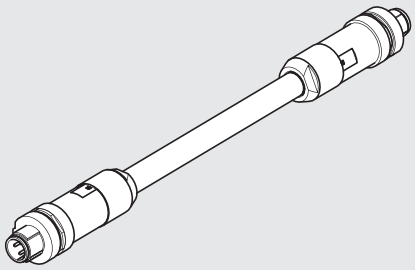
BUS CABLE



Code	Description
0240005220	BUS cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP….)

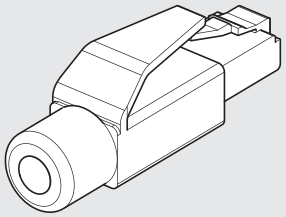
STRAIGHT BUS CONNECTOR



Code	Description
0240005103	Straight connector for M12 BUS, D-coded, with 3m cable
0240005105	Straight connector for M12 BUS, D-coded, with 5m cable
0240005110	Straight connector for M12 BUS, D-coded, with 10m cable

Note: Can be used for BUS units in the EtherNet family (Profinet IO, EtherCAT, EtherNet/IP….)

RJ45 CONNECTOR



Code	Description
0240005050	RJ45 connector with 4 contacts according to IEC 60 603-7

NOTES

CM + CANopen

The CM+CANopen system has been designed with a pneumatic input end-plate that can contain all the electronic equipment, indicators and connectors. This system is very compact and sturdy and is housed in a thick aluminium body that protects sensitive components impact and falls.
At the moment it's available the version suitable to handle up to 32 pilots (32 Out).
Grounding is recommended to protect the electronic circuit against electric or electrostatic charges.

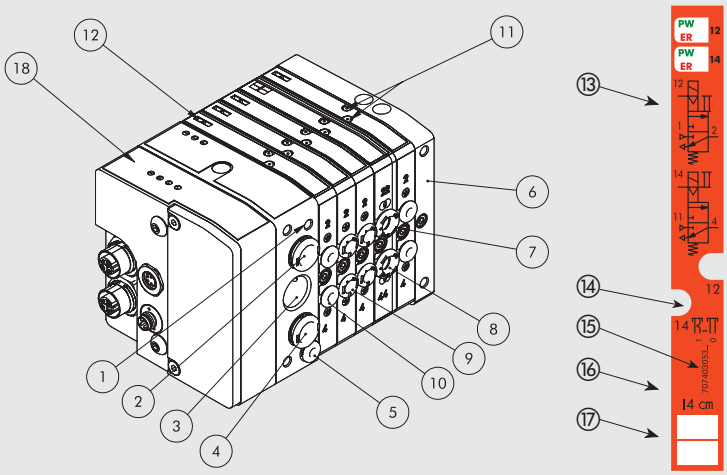
TECHNICAL DATA

Field buses	CANopen - Complies with CiA DS401 specifications
Factory settings	Module name: Cmseries
	Address 4
Addressing	Hardware via dip Switch
Voltage range	24VDC ± 10%
Maximum number of pilots (Out)	32
Maximum number of valves	32 (same as the max. no. of pilotos)
Icc bus supply current	Nominal Icc 30 mA - Instantaneous Icc (< 5 ms) 640 mA
Icc valve supply current	Instantaneous Icc (< 5 ms) 500 mA
Maximum absorption of a valve island with 32 monostable valves	Nominal Icc with 450 mA OFF valves – nominal Icc with 1350 mA ON valves
Protections	Module protected against overload and polarity reversal. Outputs protected against overloads and short-circuits
Connections	Field bus: M12 Male inputs, 5 pins, A-coded; M12 Female outputs, 5 poles, A-coded
	supply: M8 4 pin
BUS diagnostics	Using local LEDs and software messages
	Outputs: using local LEDs and status bytes
	N.B. Refer to the user manual for a detailed description
Data bit value	0 = not enabled
	1 = enabled
Output status in the absence of communication	Disabled

See page 2 for general technical data

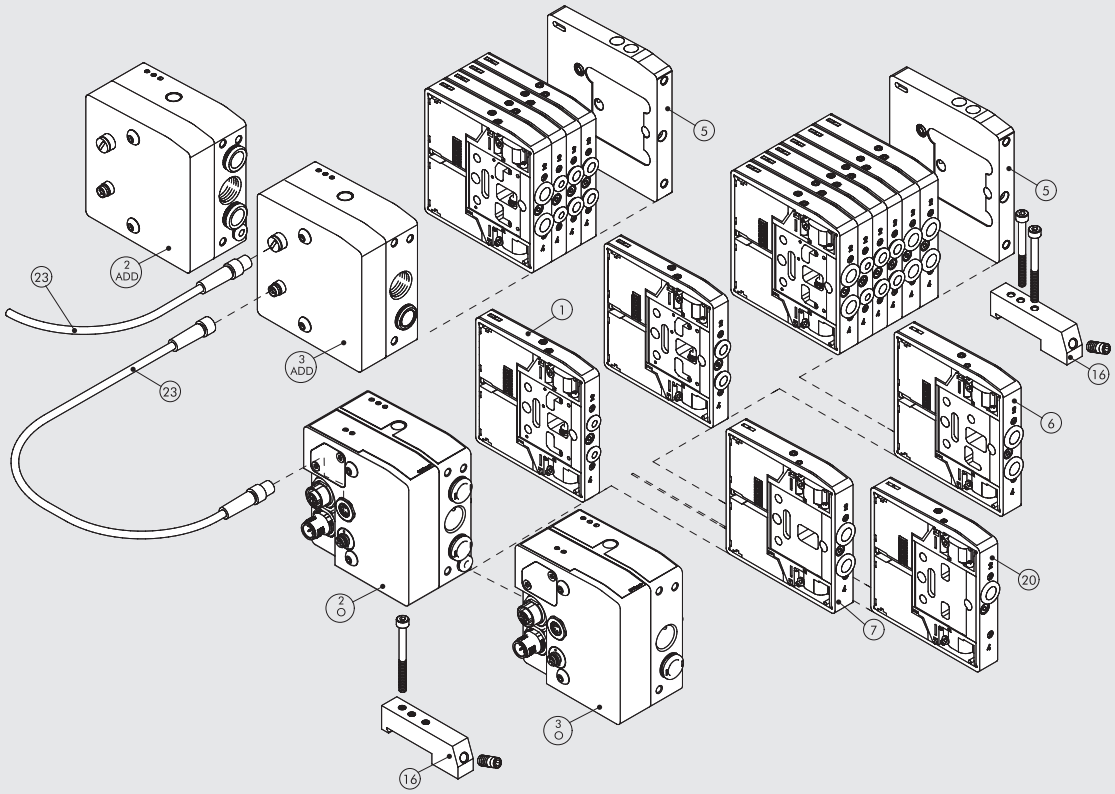
COMPONENTS

① Exhaust - Solenoid pilot 82/84
② Valve supply - port 1
③ Threaded connection of exhausts 3/5
④ Valve supply - port 11
⑤ Electrical control supply X
⑥ Blind end-plate
⑦ Screw for valve wall-mounting
⑧ Utility port for pipe Ø 8 mm
⑨ Utility port for pipe Ø 6 mm
⑩ Utility port for pipe Ø 4 mm
⑪ Manual control
⑫ LED (LED on, solenoid valve energised)
⑬ Pneumatic symbol
⑭ Identification of the monostable or bistable manual control
⑮ Valve ordering code
⑯ Valve identification code
⑰ Blank space for valve number
⑱ CM CANopen end-plate

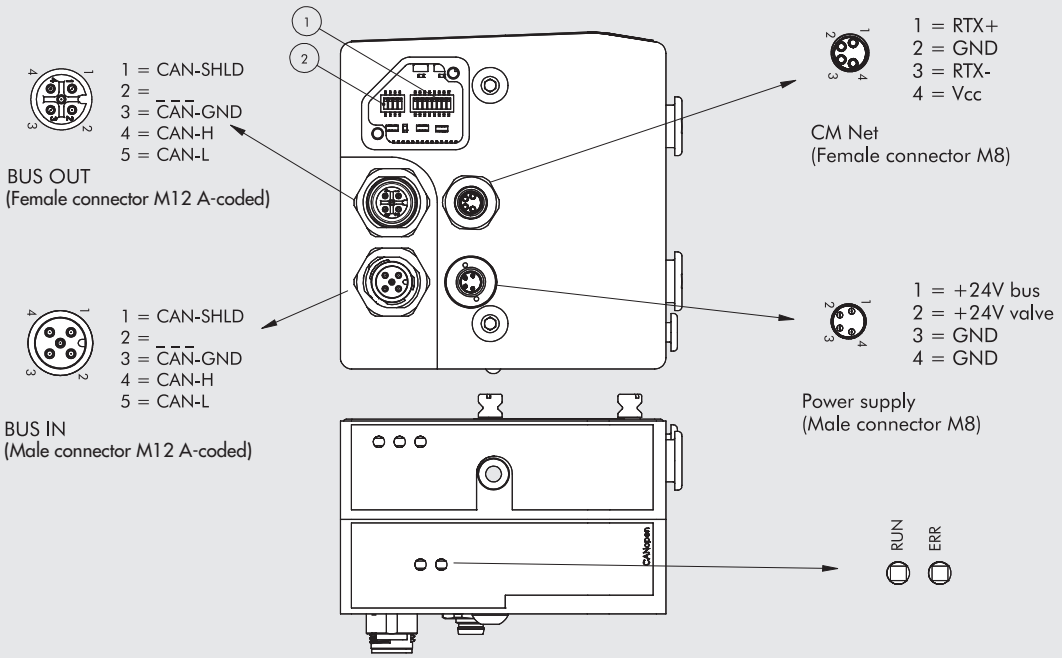


VALVE ISLAND CONFIGURATION

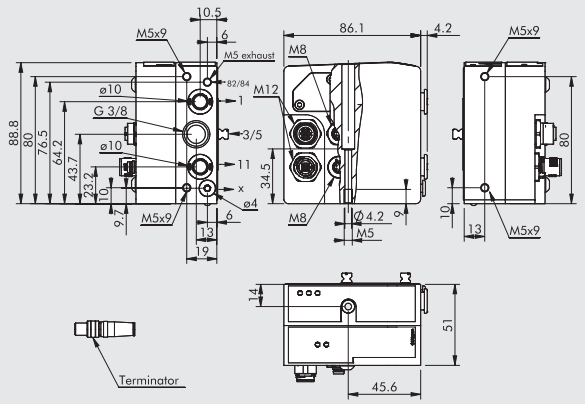
The numbers permit rapid identification of the function and assembly position of the single elements represented as follows.



WIRING DIAGRAM



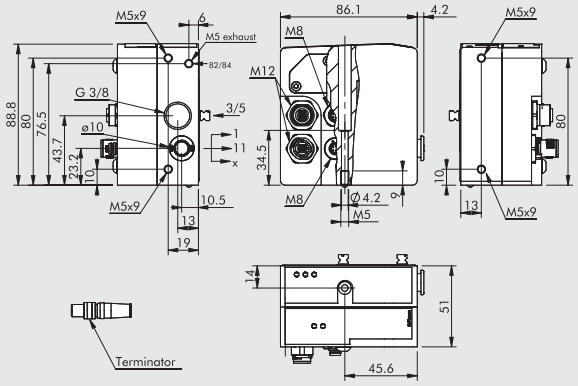
2 - O END-PLATE 1-11 CANopen OUTPUT



Code	Description	Weight [g]
0227302238	End-plate CM 1-11 CANopen OUTPUT	678

This end-plate allows for supplies to be differentiated:
port 2, port 4 and pilot supply
Note: terminator included

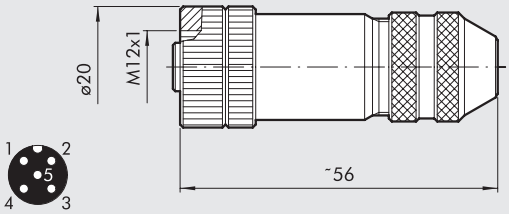
3 - O END-PLATE 1 CANopen OUTPUT



Code	Description	Weight [g]
0227302239	End-plate CM 1 CANopen OUTPUT	680

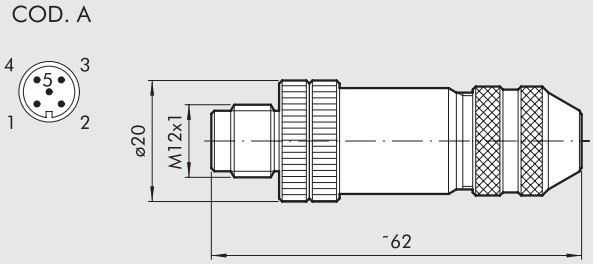
Note: terminator included

FEMALE CONNECTOR FOR CANopen BUS-IN



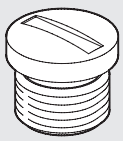
Code	Description
0240009055	M12 female connector, A-coded

MALE CONNECTOR FOR CANopen BUS-OUT



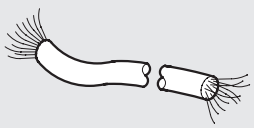
Code	Description
0240009038	Male connector Bus A-coded

M12 PLUG



Code	Description
0240009040	Plug M12

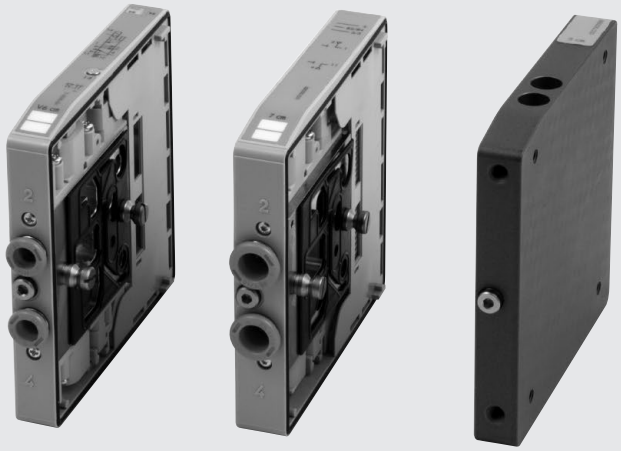
CABLE FOR CANopen BUS



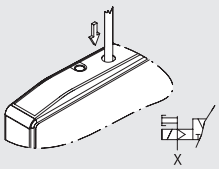
Code	Description
0240005250	Cable for CANopen bus 20 mt

CM - VALVES, INTERMEDIATES ELEMENTS AND ACCESSORIES

CM valve can be included in islands with any available input terminal.
The same valve can be connected to the multiple connection end-plate and all the field bus end-plates.



MANUAL CONTROLS



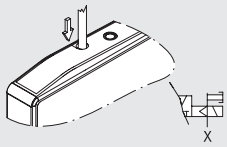
MONOSTABLE OVERRIDE PORT 2
servo-assisted

- Press and hold the manual control in position (not necessary for bistable type K valve)
- Release the manual control:
  - The manual control returns to the home position.
  - Valves type I, W, L, V and O reposition.
  - The type K valve remains switched

N.B.: The pilot power supply X must be present.

- The reference code for the monostable control ends in "0".

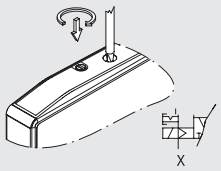
Example: 707403053 – 0



MONOSTABLE OVERRIDE PORT 4
servo-assisted

- Press and hold the manual control in position (not necessary for bistable type K valve)
- Release the manual control:
  - The manual control returns to the home position.
  - Valves type I, W, L, V and O reposition.
  - The type K valve remains switched

N.B.: The pilot power supply X must be present.



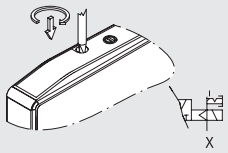
BISTABLE OVERRIDE PORT 2
servo-assisted

- Press the manual control right in then turn it clockwise 90 degrees and Leave it in position.
- Rotate the manual control 90 degrees anticlockwise, and then release it.
  - The manual control returns to the home position.
  - Valves type I, W, L, V and O reposition.
  - The type K valve remains switched

N.B.: The pilot power supply X must be present.

- The reference code for the monostable control ends in "1".

Example: 707403053 – 1

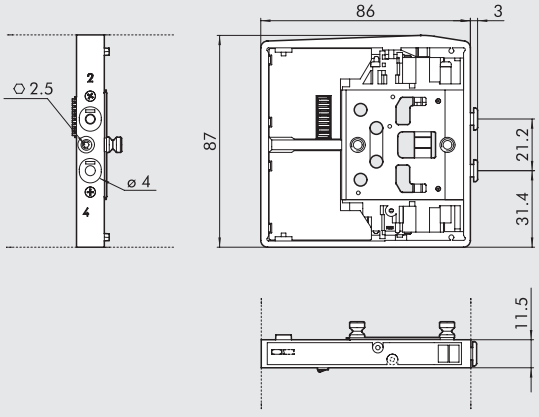


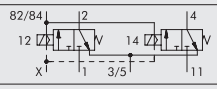
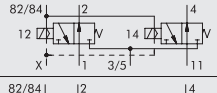
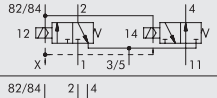
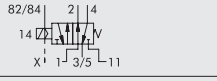
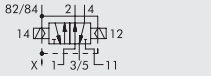
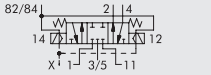
BISTABLE OVERRIDE PORT 4
servo-assisted

- Press the manual control right in then turn it 90 degrees clockwise and Leave it in position.
- Rotate the manual control 90 degrees anticlockwise, and then release it:
  - The manual control returns to the home position.
  - Valves type I, W, L and O reposition.
  - The type K valve remains switched

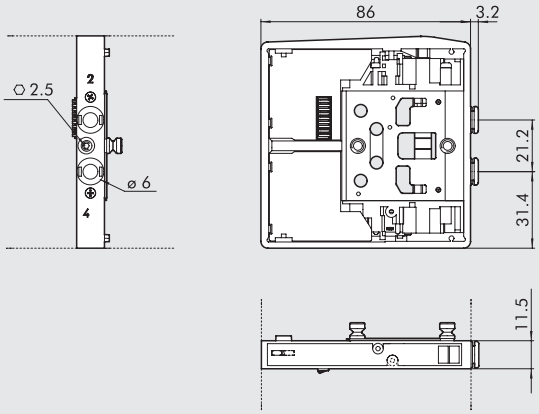
N.B.: The pilot power supply X must be present.

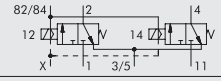
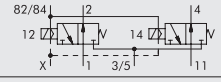
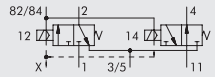
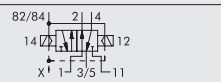
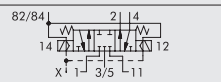
① VALVE DIMENSIONS CM Ø 4



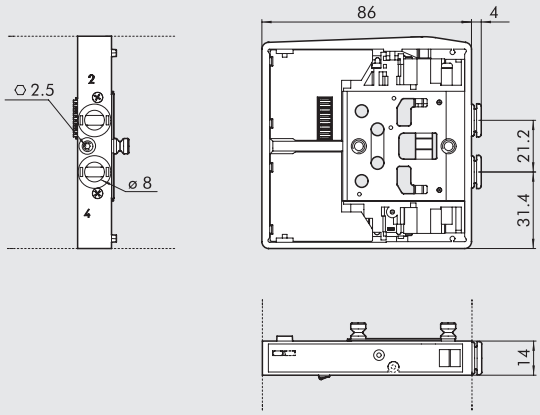
Symbol		Code	Manual control	Weight [g]
CM I4		7074030530	monostable	130
		7074030531	bistable	
CM W4		7074030630	monostable	130
		7074030631	bistable	
CM L4		7074030730	monostable	130
		7074030731	bistable	
CM V4		7074030130	monostable	115
		7074030131	bistable	
CM K4		7074030110	monostable	130
		7074030111	bistable	
CM O4		7074030210	monostable	130
		7074030211	bistable	

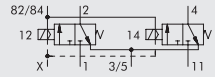
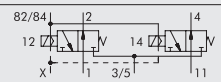
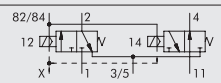
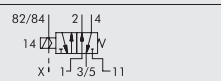
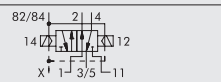
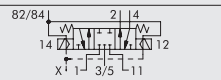
① VALVE DIMENSIONS CM Ø 6



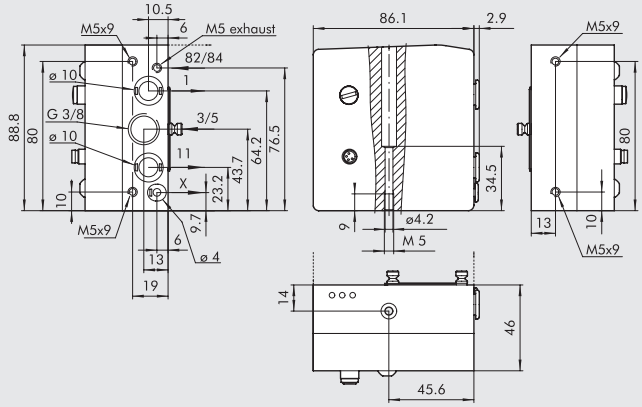
Symbol		Code	Manual control	Weight [g]
CM I6		7075030530 7075030531	monostable bistable	130
CM W6		7075030630 7075030631	monostable bistable	130
CM L6		7075030730 7075030731	monostable bistable	130
CM V6		7075030130 7075030131	monostable bistable	115
CM K6		7075030110 7075030111	monostable bistable	130
CM O6		7075030210 7075030211	monostable bistable	130

① VALVE DIMENSIONS CM Ø 8



Symbol		Code	Manual control	Weight [g]
CM I8		7076030530 7076030531	monostable bistable	140
CM W8		7076030630 7076030631	monostable bistable	140
CM L8		7076030730 7076030731	monostable bistable	140
CM V8		7076030130 7076030131	monostable bistable	130
CM K8		7076030110 7076030111	monostable bistable	140
CM O8		7076030210 7076030211	monostable bistable	140

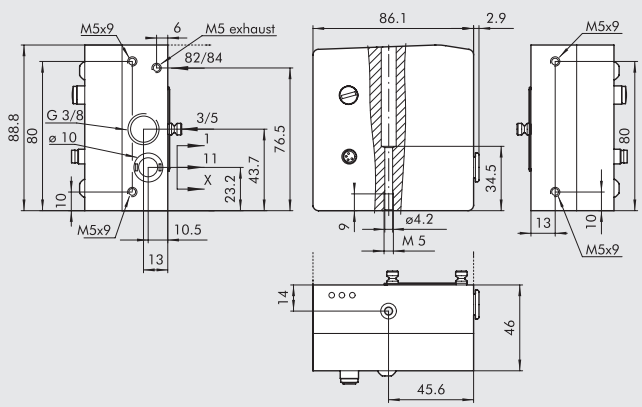
2 - ADD ADDITIONAL END-PLATE 1-11



Code	Description	Weight [g]
0227302224	End-plate CM kit 1-11 ADD	770

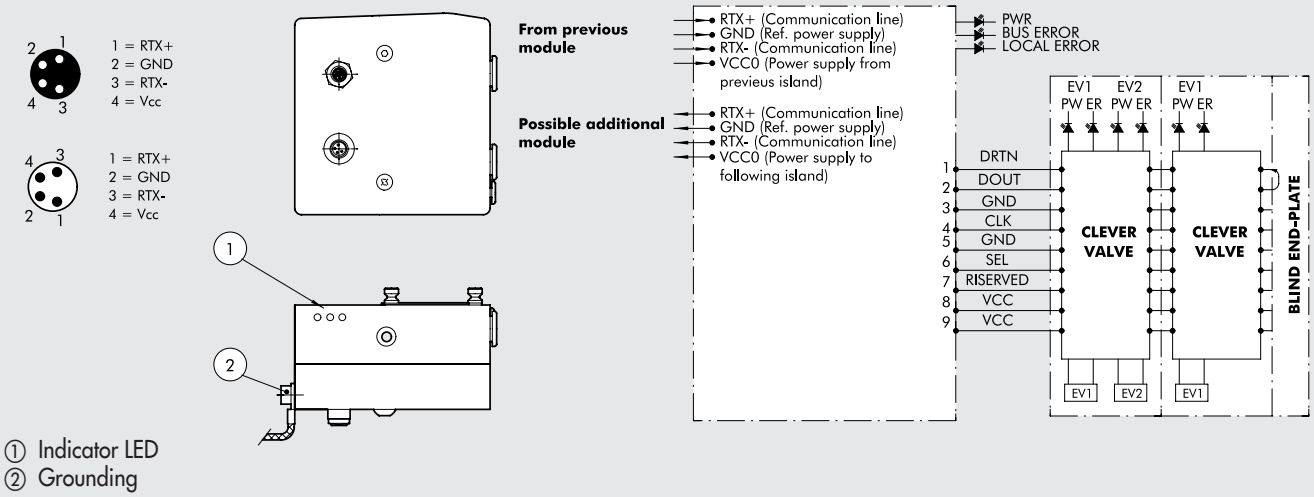
This end-plate allows for supplies to be differentiated:
port 2, port 4 and pilot supply

3 - ADD ADDITIONAL END-PLATE 1



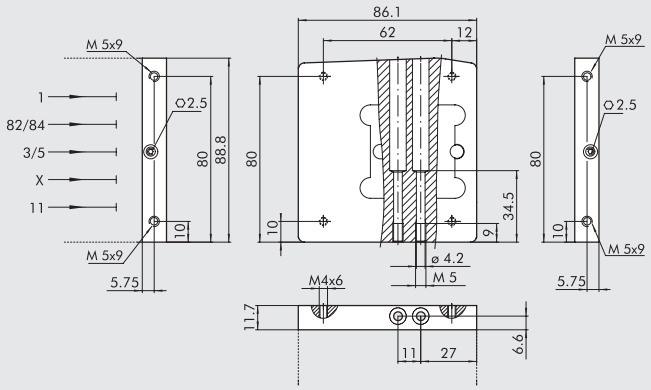
Code	Description	Weight [g]
0227302226	End-plate CM kit 1 ADD	770

WIRING DIAGRAM FOR THE ADDITIONAL TERMINAL



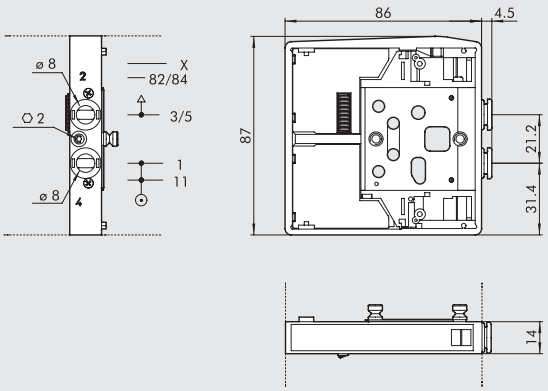
① Indicator LED
② Grounding

⑤ BLIND EN-PLATE



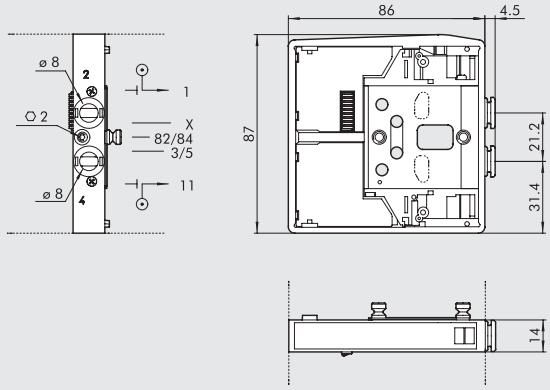
Code	Description	Weight [g]
0227302500	Blind en-plate CM	230

⑥ INTERMEDIATE THROUGHT



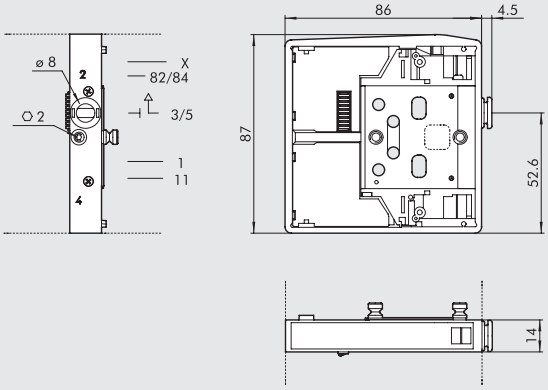
Code	Description	Weight [g]
0227302301	Intermediate throught CM	120

⑦ INTERMEDIATE BLIND



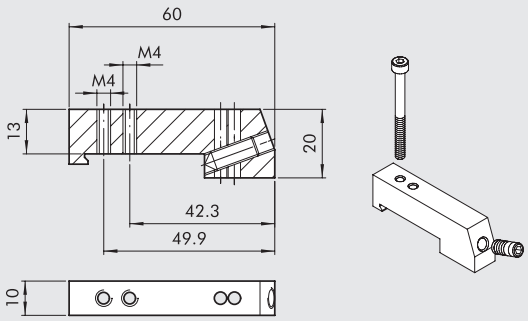
Code	Description	Weight [g]
0227302302	Intermediate blind CM	117

⑳ INTERMEDIATE EXHAUST SWITCH



Code	Description	Weight [g]
0227302303	Intermediate exhaust switch CM	125

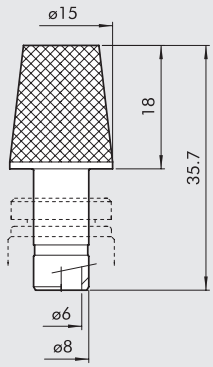
⑯ CONNECTION BRACKETS ON DIN BAR



Code	Description	Weight [g]
0227301600	Connection brackets on din bar HDM/CM	30

Supplied complete with one M4x45 screws and one grub screw
Individually packed

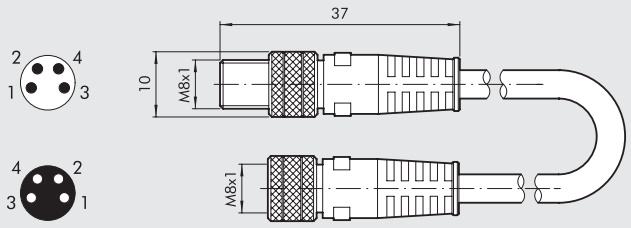
SILENCER FOR FITTING, Ø 8



Code	Description	Weight [g]
W0970530084	Silencer for fitting, Ø 8	15

At the 3/5-exhaust port of the intermediate through reference 6
and the exhaust switch reference 20

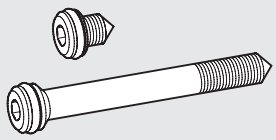
㉓ M8 PREWIRED CONNECTOR FOR VALVE ISLANDS CONNECTIONS



Pin	Cable colour
1	Brown
2	White
3	Blue
4	Black

Code	Description
0240005003	M8 prewired connector for valve islands conn. CM L = 5 m
0240005005	M8 prewired connector for valve islands conn. CM L = 1 m
0240005006	M8 prewired connector for valve islands conn. CM L = 3 m
0240005008	M8 prewired connector for valve islands conn. CM L = 10 m

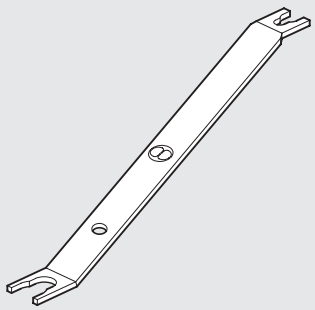
GRUB SCREW KIT



Code	Description
0227301800	Grub screw for Multimach HDM/CM

Comes 1 + 1 packs

R17 - DISASSEMBLY KEY



Lenght = 140 mm

Code	Description	Ø Tube	Tube
2L17001	RL17	from Ø 3 to Ø 10	For R fitting and Fox fitting

NOTES